

wards the posterior margin; the lateral spines not thickened at base. Outer margin of the dactyli of the raptorial limbs unarmed at base (not unituberculate, as in *S. Desmarestii*). Appendages of the thoracic limbs membranaceous and broadening from base to apex. Inner lobe of the base of the uropoda margined with narrow and very acute spines gradually increasing in length; inner lateral laminae linear, eight times as long as broad; outer with the first joint longer than the second.

Hab. Japan.

A single specimen was known to De Haan.

[To be continued.]

II.—*Preliminary Report on the Australian Amphipoda* *.

By WILLIAM A. HASWELL, M.A., B.Sc. Edinburgh.

A STUDY of the Amphipodous Crustacea of Australia during the last few months has revealed features of special interest in that department of the southern marine fauna. The field of research has been almost entirely untouched; for, though Milne-Edwards †, Dana ‡, Stimpson §, and Spence Bate || have described a few Australian forms, the total number of species hitherto known amounts only to thirteen—these being chiefly Orchestidæ, the few Gammaridæ described not including any of the forms which must be regarded as peculiarly Australian.

Between the amphipodous fauna of Temperate Australia as exemplified in Port Jackson and that of tropical Queensland a well-marked dividing-line may be drawn. In temperate latitudes on the Australian coast littoral and circumlittoral Algæ are extremely abundant and varied in sheltered situations, giving, with the numerous varieties of sponges and phytoïd Polyzoa, a well-marked facies to the shallow-water life of these shores, and affording ample feeding-grounds and lurking-places for myriads of edriophthalmous Crustacea. It is here that the characteristic Australian forms are to be found. Within the tropics, on the other hand, Algæ are

* Descriptions and figures of the new species will appear in the 'Proceedings of the Linnean Society of New South Wales' for the present year.

† 'Histoire Naturelle des Crustacés,' tom. iii. (1837).

‡ 'Proceedings of the American Society of Natural Science, Boston,' vol. ii.; and 'Crustacea of the U.S. Exploring Expedition.'

§ 'Proceedings of the Academy of Natural Sciences of Philadelphia (1855).

|| 'Catalogue of Amphipodous Crustacea' (1862).

comparatively few; and even where they occur in considerable masses (as is the case on the dead parts of coral reefs with certain fucoids) their edriophthalmous inhabitants are not numerous, and belong, so far as at present ascertained, to cosmopolitan genera—the species being, in many cases, identical with those of the temperate zone. Amongst living coral but few Amphipoda or Isopoda are to be found; and the use of the dredge at various depths in the neighbourhood of the coral reefs did not produce a large variety of forms; the Orchestidæ, however, are quite as abundant on sandy and stony beaches in the tropics as in temperate latitudes. The following is a summarized account of the species observed:—

A species of *Talitrus* inhabits damp woods and scrubs in New South Wales and Tasmania, being found in the former colony at least thirty miles from the sea; and another occurs under dead wood and leaves in the mangrove-swamps of tropical Queensland. Species of *Talorchestia*, *Orchestoidea*, *Orchestia*, and *Allorchestes* are abundant on the shores of Tasmania, New South Wales, and Queensland.

A species of *Stegocephalus* (*S. latus*), broader and higher than the Arctic species, and distinguished from it in various other particulars, is found in Tasmania.

A remarkable new form, which I have named *Cyproidea*, from its superficial resemblance to a Cyprid, is represented by two species found in Port Jackson. It is characterized by the possession of deep lateral shields, formed not, like the corresponding though much smaller structures in the sub-family *Stegocephalides* (Spence Bate), by the coxæ of the second gnathopoda and first and second pereopoda, but by those of the first and second pairs of pereopoda alone, these being enormously expanded, extending forwards to the sides of the cephalon and backwards nearly to the level of the posterior limit of the pereion, concealing the inconspicuous coxæ of the gnathopoda, and excavated above and posteriorly for the reception of the shallow amalgamated coxæ of the third and fourth pairs of pereopoda, the coxæ of the last pair of pereopoda remaining rudimentary. These shields almost conceal the gnathopoda and all but the tips of the pereopoda, and are variously ornamented with coloured dots and lines in the two species. The antennæ are simple and subequal; the mandibles palpigerous; the maxillipedes unguiculate and armed with small squamiform plates; the gnathopoda subchelate (*complexly* in one species, *simply* in the other); the posterior pleopoda biramous, and the telson simple.

Another characteristic genus is one which I have named

Amaryllis, represented by a species in Tasmania and another in Port Jackson. It has the coxæ of the second pair of gnathopoda and of the first and second pairs of pereopoda expanded as in *Stegocephalus*, *Pleustes*, and allied genera, but differs from all of them in combining the possession of appendiculate superior antennæ with palpigerous mandibles and biramous foliaceous posterior pleopoda.

The genus *Lysianassa* is represented by several species in Port Jackson (where it is very abundant in certain situations) and Port Denison.

Allied to *Lysianassa* is a new genus (*Glycera*) represented by a species common to North Australia (Howick group of islands) and Port Jackson. It is characterized by having the four anterior pairs of coxæ very deep, as in *Lysianassa*, *Anonyx*, and other genera of the subfamily *Lysianassides* of Spence Bate, but possesses longish slender (appendiculate) superior antennæ; the mandibles are palpigerous; the maxillipedes possess well-developed squamiform processes, as in *Lysianassa*; the gnathopoda are slender and filiform; the posterior pleopoda are biramous; and the telson is double.

A species of *Ampelisca* occurs in Port Jackson and Port Denison, together with two species of *Phoxus*. A species of *Edicerus* and one of *Urothoë* occur on the sandy beach at Bondi, near Sydney. The genera *Pherusa* and *Atylus* are both represented, the latter by several species. Of the genus *Leucothoë* several species from Tasmania, New South Wales, and Queensland have the gnathopoda formed upon the same type as the European *L. articulosa* and the American *L. grandimana*, whilst another approaches more nearly in that respect to *L. furina*. These species are almost always found in the interior of sponges, or in the pharyngeal and atrial cavities of various ascidians.

Species of the cosmopolitan genera *Melita*, *Megamæra*, *Mæra*, and *Gammarus* occur abundantly—the common species of the first of these, which I have named *Melita australis*, being a very close ally of the North-African *M. anisochir*.

A species of *Eusirus*, distinguished by the spinous anterior pleonal segments, occurs in Tasmania.

Probably nearly related to *Eusirus* and *Iduna* is a new generic form which I have named *Macleayia*. It has the superior antennæ appendiculate, shorter than the inferior pair; the mandibles are provided with an appendage; the maxillipedes are exunguiculate, with the squamiform processes rudimentary; the gnathopoda are subchelate, the posterior pair being very large; the posterior pleopoda have one large ramus; and the telson is small and undivided.

Another new genus, *Polycheria*, is represented by two species found in Port Jackson. It has the pereion broad, the pleon compressed and carinate; the antennæ are of nearly equal size, with long slender flagella, the superior pair being devoid of secondary flagellum; the mandibles are exappendiculate; the maxillipedes possess well-developed squamiform processes; the gnathopoda are subchelate, small; the pereiopoda are slender, and have all prehensile terminal joints; the posterior pleopoda are biramous; and the telson is double. *Polycheria* would belong to Dana's subfamily *Isœanæ*, but has little in common with *Isœa* save the prehensile pereiopoda.

In *Chloris* (mihi) the antennæ are well developed, the superior pair shorter than the inferior and provided with an appendage; the mandibles are palpigerous; the maxillipedes unguiculate, subpediform, provided with a squamiform process on the basal joint only; the gnathopoda are subchelate, unequal, the second pair being very large; the posterior pleopoda are biramous, with short, conical rami; and the telson is single and elongate.

Several species of *Microdeuteropus* occur in Port Jackson, one of them having a close relationship to *M. Websterii*, another to *M. gryllotalpa*, and a third to *M. anomalus*, while a fourth appears to have no precise homotype among northern species.

A new form allied to *Microdeuteropus* I have named *Xenochœira*. It is distinguished by the remarkable form of the posterior gnathopoda, the carpus of these organs being broad and plate-like, projecting anteriorly, and articulating in an unusual manner with both ischium and meros; the superior antennæ are long and appendiculate, the inferior shorter; the mandibles are provided with an appendage; the maxillipedes possess squamiform processes; the gnathopoda are non-subchelate, and armed with long, close fringes of hairs; the posterior pleopoda are biramous; and the telson is simple.

Allied to Krøyer's genus *Protomedeia*, but distinguished from it by the short exappendiculate superior antennæ and the simple anterior gnathopoda, is a new generic form which I have named *Haplochœira*, represented by a species found in Port Jackson.

The genus *Amphithoë* is common on the Australian coast, several of the species being found both in Port Jackson and in Port Denison; *Podocerus* also occurs in the former locality, together with three species of *Cyrtophium*, and one (or perhaps two) of Dana's remarkable aberrant genus *Icilius*.

Among the Corophiidae, a curious form obtained with the dredge in Port Jackson appears to belong to the genus de-

scribed by Grube (Archiv für Naturg. Band i. p. 201) under the name of *Colomastix*. It has stout, simple, subequal antennæ, with rudimentary flagella, like those of *Cratippus*; the anterior gnathopoda are long, filiform, and exunguiculate in both sexes, while those of the posterior pair are large and subchelate; the posterior pleopoda are biramous with unequal rami; and the telson is single and pointed. This peculiar form shows an approximation to *Cratippus* and *Siphonæcetus* in the structure of the antennæ, but differs from both these genera in the form of the anterior gnathopoda and of the posterior pleopoda; from the allied genera *Podocerus*, *Corophium*, *Dryope*, and *Unciola* it is separated by the character of the antennæ and of the anterior gnathopoda.

III.—On the Terms *Bryozoa* and *Polyzoa*.

By ARTHUR WILLIAM WATERS, F.G.S.

I HAVE already* given my reasons shortly for calling this group *Bryozoa* instead of *Polyzoa*; but it seems advisable to call attention to this point again more fully.

The argument upon which those who have adopted the name *Polyzoa* have relied has been that Thompson had priority over Ehrenberg. This does not appear to be disputed, and seems to have been a side wind which has prevented zoologists from examining Thompson's paper, thinking it was a question of dates; but I have pointed out that Thompson did not in his paper indicate any group of animals by his term, and that all he meant by *Polyzoa* was a single polypide. It is apparent he here made an etymological mistake, as also in using the plural *Polyzoæ*; but with this we have nothing to do, and I do not urge this as any reason against his term, but confine myself to the meaning he applied.

We do not need to go further than the title, which is, "On *Polyzoa*, a new animal discovered as an inhabitant of some Zoophytes." I ask, does this in the least express our present ideas? Further on (p. 97) he says, "the other species of *Sertularia* in which the animals have been determined to be *Polyzoæ*;" and this same idea of the inhabitants of the zoophytes being *Polyzoæ* is expressed every few lines.

I feel the greatest confidence that as soon as zoologists generally know that this is no bibliographical question of dates, and themselves turn to Thompson's paper, they will see

* "On *Bryozoa*," Manch. Lit. & Phil. Soc., Microsc. & Nat. Hist. Sect. 1878, vol. xvii.